Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service	)	GN Docket No. 96-228

REPLY

THE WIRELESS CABLE ASSOCIATION
INTERNATIONAL, INC.

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EXECUTIVE SUMMARY

The comments submitted in response to WCA's Petition strongly support adoption of WCA's proposed rule changes. Of all the comments submitted, only one party, Metricom, opposes grant of WCA's petition. Yet, Metricom — a company whose commercial Internet access service will benefit if MDS and ITFS licensees are subjected to interference from WCS -- fails to demonstrate that the current WCS rules are in the public interest.

Numerous parties, many of whom utilize ITFS facilities for the distribution of educational programming, have submitted comments endorsing WCA's proposed WCS rule changes. In addition, Congressional concern over the Commission's failure to protect wireless cable and ITFS services has been expressed. In contrast, not one party, not even Metricom, has disputed that the transmission of a WCS signal at an EIRP in excess of 20 watts could have a dramatic adverse impact on MDS and ITFS reception. And, no one, again not even Metricom, has presented the Commission with any factual evidence that a 20 watt EIRP limitation would adversely impact the development of WCS. Indeed, the only filings in this docket which address the power level necessary for successful employment of PCS suggest that an EIRP limit of far less than 20 watts would be acceptable.

The arguments advanced by Metricom do not bear up under scrutiny. Contrary to Metricom's claim, the interference potential of WCS is not "minimal." Metricom bases its analysis upon flawed assumptions regarding the power levels of WCS transmitters, the configuration of WCS networks, and the potential proximity of MDS and ITFS receivers to WCS transmitters. Given the possible WCS system configurations, the possibility of interference is far greater than Metricom surmises.

Similarly, Metricom is incorrect when it suggests that MDS and ITFS operations are already subject to interference from ISM and amateur operations. ISM equipment must protect MDS and ITFS reception and, as a practical matter, do not cause interference because ISM equipment generally is designed to contain RF emissions. Amateur radio operations are obligated to transmit at the lowest possible power, rarely transmit at maximum authorized power, are few and far between, and transmit intermittently in any event.

Finally, the procedural arguments Metricom advances are based on a flawed understanding of the Petition. Rather than reiterate prior arguments, as Metricom alleges, the Petition establishes that certain assumptions underlying the *Report and Order* (which assumptions were not based on any evidence in the records) were incorrect.

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Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS")	)	GN Docket No. 96-228

REPLY

The Wireless Cable Association International, Inc. ("WCA"), by its attorneys and pursuant to the Commission's March 19, 1997 *Public Notice*,[1/] hereby replies to the Opposition filed by Metricom, Inc. ("Metricom") in response to WCA's Petition for Expedited Reconsideration in the above-captioned matter (the "Petition"). As will be demonstrated below, the arguments advanced by Metricom — the sole opponent to grant of WCA's Petition — are based on erroneous understandings both of the Petition and of the potential for WCS to cause significant interference to Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") facilities.

I. INTRODUCTION.

Simply stated, WCA's Petition urges the Commission to impose a 20 watt EIRP limitation on Wireless Communications Service ("WCS") operations in order to avoid the harmful interference to MDS and ITFS facilities that would otherwise result from WCS

[1/] "Expedited Pleading Cycle Established for Oppositions and Replies to Oppositions to Petitions for Reconsideration filed by the Wireless Cable Association International, Inc. and by PACS Providers Forum and DigiVox Corporation," *Public Notice*, DA 97-548 (rel. Mar. 13, 1997).

transmissions at higher powers. As is demonstrated by the Engineering Statement of T. Lauriston Hardin, P.E. (the "Initial Hardin Statement") that accompanies the Petition, while operation of WCS systems at 20 watts EIRP will cause some interference to MDS and ITFS operations,[2/] the proposed 20 watt EIRP limitation is necessary to avoid widespread disruptions.[3/]

The record developed in response to the Petition speaks volumes. Numerous parties, many of whom utilize ITFS facilities for the distribution of educational programming, have submitted comments endorsing WCA's proposed WCS rule changes.[4/] In addition, Congressional

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[2/] Specifically, the Hardin Statement presented an analysis of the potential for interference from WCS which established, even at 20 watts EIRP, interference would be caused to MDS and ITFS reception devices within of 300 feet from the WCS transmitter. *See* Initial Hardin Statement, at 2-3. In other words, WCA has not sought absolute protection for all MDS and ITFS receivers, and is willing to accept the interference that will result even if the Commission limits WCS EIRP to 20 watts.

[3/] As is discussed *infra* starting at page 7, WCA agrees with George Mason University Instructional Foundation, Inc. ("GMUIF") that an exception should be made and higher-powered WCS transmissions permitted where the WCS licensee secures the consent of all potentially affected ITFS and MDS applicants and licensees. *See* Letter to William Caton from Michael R. Kelley, Ph.D., GN Docket No. 96-228 (filed March 20, 1997)[hereinafter cited as "GMUIF Letter"]. A similar position was previously advocated by BellSouth Corporation ("BellSouth") in *ex parte* comments submitted in response to the *Notice of Proposed Rulemaking* in this proceeding. *See* Letter to William F. Caton from Karen B. Posner, GN Docket No. 96-228, Statement of Robert A. Saunders, at 2 (filed Jan. 30, 1997)[hereinafter cited as "BellSouth *Ex Parte* Letter].

[4/] *See* Comments of Alliance for Higher Education, *et al.*, in Support of WCA Petition for Expedited Reconsideration, GN Docket No. 96-228 (filed Mar. 21, 1997) [hereinafter cited as "Alliance Comments"]; Comments of The Archdiocese of Los Angeles Education and Welfare Corporation, GN Docket No. 96-228 (filed Mar. 21, 1997) [hereinafter cited as "ALAE Comments"]; Asheville-Buncombe Technical Community College Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); Asheville Christian Academy Letter, GN Docket No. 96-228 (dated Mar. 18, 1997); GN Docket No. 96-228; Blue Ridge Community College Letter, GN Docket No. 96-228 (dated Mar. 18, 1997); Brunswick Community College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); CAI Wireless Systems, Inc. Letter, GN Docket No. 96-228 (dated Mar. 21, 1997); Cape Fear Community College Letter, GN Docket No. 96-228 (dated Mar. 18, 1997);

concern over the Commission's failure to protect wireless cable and ITFS services has been expressed.[5/] In contrast, not one party, not even Metricom, has disputed that the transmission of a WCS signal at an EIRP in excess of 20 watts could have a dramatic adverse impact on MDS and ITFS reception.[6/] And, no one, again not even Metricom, has presented the Commission with any factual evidence that a 20 watt EIRP limitation would adversely impact the development of

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College of the Albemarle Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); Edgecombe Community College Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); Fayetteville Technical Community College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); Forsyth Technical Community College Letter, GN Docket No. 96-228 (dated Mar. 19, 1997); Gaston College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); GMUIF Letter, GN Docket No. 96-228 (filed Mar. 20, 1997); James Sprunt Community College Letter, GN Docket No. 96-228 (dated Mar. 21, 1997); Meredith College Letter, GN Docket No. 96-228 (dated Mar. 18, 1997); Lenoir Community College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); Statement of Mississippi EdNet Institute, Inc. in Support of Petition for Expedited Reconsideration, GN Docket No. 96-228 (filed Mar. 21, 1997) [hereinafter cited as "EdNet Comments"]; Mitchell Community College Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); Nash Community College Letter, GN Docket No. 96-228 (dated Mar. 19, 1997); Pamlico Community College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); Queens College Letter, GN Docket No. 96-228 (dated Mar. 18, 1997); Randolph Community College Letter, GN Docket No. 96-228 (dated Mar. 19, 1997); Roanoke Bible College Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); Roanoke Rapids Graded School District Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); Sampson Community College Letter, GN Docket No. 96-228 (dated Mar. 20, 1997); Sandhills Community College Letter, GN Docket No. 96-228 (dated Mar. 14, 1997); The University of North Carolina Letter, GN Docket No. 96-228 (dated Mar. 17, 1997); Wilson Technical Community College Letter, GN Docket No. 96-228 (dated Mar. 17, 1997).

[5/] *See* Letter to Hon. Reed E. Hundt from Hon. Trent Lott and Hon. Charles Pickering, Jr., GN Docket No. 96-228 (Mar. 20, 1997).

[6/] To the contrary, Metricom implicitly concedes that WCS operations in excess of 20 watts EIRP will interfere with MDS and ITFS operations. Metricom merely contends that the interference that WCS will cause will be limited to MDS and ITFS receivers located within 300 feet of the WCS transmitter. Metricom's argument, however, presumes that WCS transmitters operate at no greater power than 80 watts EIRP and that WCS transmitters are not located in close proximity to MDS and ITFS receivers. As is discussed *infra* starting at page 8, neither of these presumptions is correct.

WCS. Indeed, the only filing in this docket that specifically address the power level necessary for successful employment of PCS suggest that an EIRP limit of far less than 20 watts would be acceptable.[7/]

Although conveniently omitted from Metricom's filing, the Commission should note that Metricom provides a commercial wireless Internet access service using unlicensed Part 15 spectrum in direct competition to the wireless cable industry.[8/] It is worth noting that Metricom has not heretofore participated in this proceeding, but now advocates a WCS regulatory regime that threatens grave harm to wireless cable's ability to employ MDS and ITFS facilities in providing wireless Internet access. In effect, Metricom is asking the Commission to protect an unlicensed service from competition via spectrum that was auctioned to the wireless cable

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[7/] *See* Petition of PACS Providers Forum and Digivox Corp. for Expedited Reconsideration, GN Docket No. 96-228, at 2 (filed Mar. 11, 1997)[hereinafter cited as "PACS/Digivox Petition"].

[8/] *See* "FCC Designates 300 MHz in the 5 GHz Band for U-NII," *Wireless Data News* (Jan. 22, 1997). It is also a matter of public record that wireless cable operators are making substantial investments in researching and developing wireless Internet access services. *See, e.g.*, Barthold, "High-Speed Data Dominates Wireless Meeting," *Cable World*, at 58 (Feb.24, 1997); "Winter Meeting: More and Better Access," *Wireless Cable Investor*, at 4-6 (Feb. 26, 1997); Breznick and Vittore, "Wireless Internet Access Gaining Steam," *Cable World*, at 26 (Oct. 31, 1996; "American Telecasting Teams with MCI," *Cable World*, at 2 (Oct. 31, 1996); "CAI Wireless High-Speed Access News," *Wireless Cable Investor*, at 2 (Oct. 31, 1996); "Wireless News," *Cable World*, at 30 (Oct. 28, 1996) ("CAI Wireless Inc. asked the FCC to approve two-way communications using its wireless cable channels in Hartford, Conn. Approval would let CAI use channels for high-speed Internet access . . . ."). Indeed, WCA and over one hundred other parties have recently filed a Petition for Rulemaking with the Commission proposing new regulations that would permit routine two-way use of MDS and ITFS frequencies for this purpose. *See Amendment of Parts and 74 to Enhance the Ability of Multipoint Distribution Service and Instructional Fixed Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions*, Petition for Rulemaking, (filed Mar. 14, 1997).

industry for over $200,000,000!

Whatever Metricom's motives may be, its arguments fail to withstand scrutiny. Simply stated, Metricom does not advance a single rationale for the Commission to depart from its long-standing policy of protecting existing services from interference caused by newcomers.[9/] Accordingly, WCA urges the Commission to expeditiously limit WCS transmissions to 20 watts EIRP unless the WCS licensee secures the consent of potentially affected MDS and ITFS applicants and licensees.

II. DISCUSSION

A. Restricting WCS Licensees To 20 Watts EIRP Absent Consent Of Potentially Affected MDS And ITFS Licensees Will Provide WCS Licensees Sufficient Flexibility.

Before turning to the many areas where WCA and Metricom disagree, it is worth noting that WCA agrees with Metricom on one point — the Commission should "provide for enough EIRP to make [WCS] attractive and viable."[10/] What Metricom ignores, however, is that the record established in response to the *Notice of Proposed Rulemaking* and again in response to the Petition demonstrates that WCA's proposed limitation of 20 watts EIRP would result in a service that meets that criteria.

[9/] *See, e.g., Broadcast Corp. Of Georgia,* 96 F.C.C. 2d 901, 906 (1984); *Midnight Sun Broadcasting Co.*, 3 Rad. Reg. 1751 (P&F 1947); *Sudbrink Broadcasting of Georgia*, 65 F.C.C.2d 691 (P&F 1977). *See also Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service*, 1 CR 1, at ¶ 41 (1995)("among co-equal services we have traditionally used a 'first in time, first in right' approach to appropriating interference protection rights."); *Athens Broadcasting Co.*, 68 F.C.C.2d 920 (1978)(cable system anticipating harmful interference from prospective FM licensee could reply on "first in time" policy for protection).

[10/] Metricom Opposition, at 6.

As pointed out in the Petition, there is no evidence before the Commission in this proceeding which suggests that a 20 watt power limitation for WCS licensees will decrease the value of WCS spectrum or preclude WCS licensees from deploying their facilities in an optimal matter.[11/] While Metricom raises the *in terrorum* argument that WCS will be "dead on arrival" if the Commission does not authorize WCS licensees to operate with "sufficient" EIRP, Metricom curiously fails to opine as to what EIRP it would consider "sufficient." Significantly, Metricom does not even allege, much less establish, that WCS licensees would be unable to offer a viable service with a 20 watt EIRP limitation.[12/] Metricom's reluctance is not surprising given that to date no WCS equipment manufacturer has disputed the sufficiency of the 20 watt EIRP limit. To the contrary, the only filing in this proceeding that specifically addresses the power requirements of WCS establishes that a 20 watt EIRP limitation is more than generous.[13/] In short, there continues to be no basis in the record for the Commission to find that the proposed 20 watt EIRP limitation would hamper WCS.

[11/] WCA Petition, at 18.

[12/] Metricom Opposition at 6. Metricom's opposition to power limitations on WCS stands in stark contrast to its frequent support for power limits on services that could cause interference to Metricom's use of unlicensed spectrum For example, in response to a petition filed by the American Radio Relay League, Metricom argued against permitting amateurs to transmit over certain frequencies using up to 100 watts of output power and unlimited antenna gain. *See* Reply Comments of Metricom, Inc., RM 8737, at 3-4 (filed Mar. 12, 1996). Similarly, Metricom is a member of the Millimeter Wave Communications Working Group, which recently recommended that the Commission adopt a power limitation, in addition to EIRP and spectral density requirements, in the 59-64 MHz band. *See* Report and Recommendations of the Millimeter Wave Communications Working Group to the Federal Communications Commission, ET Docket No. 94-124, at 3 (filed Dec. 13, 1996). As a result, Metricom's assertion that *no* power limits are appropriate for WCS must be viewed with some suspicion.

[13/] *See* PACS/Digivox Petition, at 2, 9.

Moreover, adoption of WCA's proposal need not preclude higher power WCS operations in the future should a demand arise. In comments supporting grant of WCA's Petition, George Mason University Instructional Foundation, Inc. ("GMUIF") has proposed that a WCS licensee be permitted to operate with an EIRP in excess of 20 watts, provided that it secures the consent of potentially affected MDS and ITFS licensees.[14/] While the record before the Commission does not establish any current demand for WCS operations in excess of 20 watts EIRP, WCA agrees that it would be desirable to give a WCS licensee the flexibility to transmit at higher power levels should a demand materialize, so long as the WCS licensee and affected MDS and ITFS licensees are able to negotiate mutually-acceptable arrangements designed to mitigate harmful WCS interference. Accordingly, WCA recommends that the Commission authorize a WCS licensee to operate at greater than 20 watts EIRP if, but only if , the WCS licensee has obtained prior consent from potentially affected MDS or ITFS licensees.[15/] An approach to interference

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[14/] *See* GMUIF Comments, at 1. As noted *supra* at note 3, a similar approach was previously proposed by BellSouth. Although neither GMUIF nor BellSouth specified which MDS and ITFS licensees should be required to consent to high power WCS operations, WCA believes that consent should be required from the holder of any MDS or ITFS protected service area, as defined in Sections 21.902(b)(3), 21.933 and 74.903(d) of the Rules, that is in whole or in part within the unobstructed electrical path of the WCS transmitter proposed to operate in excess of 20 watts EIRP. For purposes of this requirement, any ITFS licensee that does not lease excess capacity and would not normally be entitled to a 35 mile radius protected service area should nonetheless be deemed to enjoy a protected service area pursuant to Section 74.903(d) of the Rules.

[15/] At the present time one can only speculate as to how closely WCS transmitters will be spaced, how high transmission antennas will be mounted, and what EIRP will be desired. As a result, it is impossible to predict the extent to which WCS transmissions at EIRPs in excess of 20 watts would adversely impact MDS and ITFS signal reception. Accordingly, WCA submits that it would be premature for the Commission to place any restrictions on the flexibility afforded WCS auction winners and MDS and ITFS licensees to structure agreements designed to mitigate harmful WCS interference. That matter is best left to private negotiations between

protection of this nature would be consistent with the Commission's long-standing policy of requiring newcomers to absorb any costs of eliminating interference to incumbent licensees in other services. Particularly given the uncertainties that currently exist regarding the nature of WCS services, GMUIF's proposal is the most practical method of allowing WCS licensees to operate at greater power should a need arise in the future, while assuring that the operations of wireless cable systems and distance learning providers will not be unduly disrupted.

B. Metricom's Contention That Interference From WCS To MDS and ITFS Will Be "Minimal" Is Based On A Flawed Reading Of WCA's Petition.

In a transparent attempt to minimize the adverse impact of potential WCS interference to MDS and ITFS facilities, Metricom would have the Commission believe that "any cases of interference will actually be minimal."[16/] Upon analysis, however, it is clear that Metricom's assertion is based upon a flawed reading of WCA's Petition.

In the *ex parte* letter it submitted in response to the *Notice of Proposed Rulemaking*, BellSouth demonstrated, by way of example, that were a WCS transmitter to operate in excess of 80 watts EIRP within 300 feet of an MDS or ITFS receive site, interference would result.[17/] Similarly, the Initial Hardin Statement demonstrates, again by way of example, that harmful WCS interference to MDS and ITFS reception will occur where a WCS transmitter operates with an EIRP of greater than 82 watts within 300 feet of an MDS or ITFS downconverter.[18/] From

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WCS and MDS and ITFS licensees who are most knowledgeable about the technical requirements of their respective systems.

[16/] Metricom Opposition, at 3.

[17/] *See* BellSouth *Ex Parte* Letter, Statement of Robert Saunders, at 1.

[18/] Hardin Statement at 2-3.

these two examples, Metricom would now have the Commission believe that the risk of interference from WCS to MDS and ITFS receive sites is remote.

The fundamental flaw in Metricom's analysis is obvious -- the Commission has not restricted WCS licensees from operating at power levels above the 80 or 82 watt EIRP figures utilized in crafting these two examples. Indeed, as demonstrated by Kessler and Gehman Associates, Inc. in an Engineering Statement submitted with the EdNet Comments, the size of the area in which interference to MDS and ITFS reception will occur expands dramatically as WCS power increases.[19/]

Furthermore, Metricom's argument is based on suppositions regarding the nature of WCS operations that have no basis in the record. For example, Metricom sumises that "the likelihood of ... WCS fixed transmitters being located a mere 300 feet away from a particular downconverter . . . is minimal at best."[20/] In fact, at this juncture it is impossible to predict the system configuration that WCS licensees will employ. While Metricom assumes that WCS will be a point-to-point service only, there is no basis in the record to presume that, despite the flexibility afforded WCS licensees to utilize any system architecture, only a point-to-point approach will be employed.[21/] In fact, as is discussed in the accompanying Engineering Statement of T. Lauriston Hardin, P.E., (the "Reply Hardin Statement"), it is certainly possible

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[19/] *See,* EdNet Comments, Exhibit E (Engineering Statement of Robert Gehman, Jr.) [computing the "interference area" around a WCS base station using various EIRPs for the WCS interfering station].

[20/] Metricom Opposition, at 4.

[21/] *Id.*

that WCS licensees will choose to employ a "microcell" design with base stations located as close as every 2000 feet. If WCS transmitters are spaced every 2000 feet, it is clear that a substantial number of MDS and ITFS reception locations will be located within 300 feet of WCS transmitters. The size of the area in which interference will occur is directly related to the number of WCS transmitters, their radio horizons, and their power levels. The record is clear that, depending upon the configuration of a particular WCS system, the resulting interference to MDS and ITFS reception could be devastating.

C. *Metricom Is Wrong In Implying That MDS And ITFS Are Already Subject To Significant Interference From ISM and Amateur Operations.*

Metricom further attempts to obfuscate the potential adverse impact of the *Report and Order* in this proceeding by suggesting that "currently authorized operations already have the potential impact to create the same problems alleged by the WCA."[22/] In fact, Metricom is wrong — neither Industrial, Scientific, and Medical Equipment ("ISM") nor the Amateur Radio Service pose a potential interference problem for MDS and ITFS operations of anywhere near the same magnitude as WCS.

Take, for example, Metricom's assertion that "ISM equipment operating in the 2.4 GHz frequency band in accordance with Part 18 of the Commission's rules has no power limits specified."[23/] What Metricom fails to note is that under Section 18.115(a) of the Commission's Rules, ISM operations are secondary to other authorized radio services — "[t]he operator of ISM equipment that causes harmful interference to radio services shall promptly take appropriate

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[22/] Metricom Opposition, at 5.

[23/] *Id.*

measures to correct the problem."[24] While it is true that the Commission does not restrict ISM output power, the fact is that ISM equipment in the 2.4 GHz band generally consists devices such as microwave ovens that, while they can operate at high power levels, are generally designed to contain that radiation within a very short radius of the emitter.[25] Indeed, ISM equipment is defined by the Commission as "[e]quipment or appliances designed to generate and use locally RF energy for industrial, scientific, medical domestic or similar purposes, excluding applications in the field of telecommunications." [26] As such, ISM equipment does not represent anything close to the type of interference threat that will be caused by WCS operations that intentionally radiate power without any effort at containment.

Similarly, Metricom's assertion that "Amateur operations under Part 97 of the Commission's rules in the 2.3 and 2.4 GHz bands are authorized to operate with up to 1500 watts output power and unlimited EIRP" misses the mark.[27] While it is true that amateur radio facilities can operate at a maximum of 1500 watts, the fact is that amateur radio operators have an obligation under the rules to employ the minimum amount of power necessary.[28] Not surprisingly then, most amateur radio facilities operate with far less power than the maximum. As the American Radio Relay League, a recognized spokesgroup for the amateur radio

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[24] *See also* 47 C.F.R. §18.111(b) ("the operator of ISM equipment that causes harmful interference to any authorized radio service shall promptly take whatever steps may be necessary to eliminate the interference.").

[25] *See* Reply Hardin Statement.

[26] 47 C.F.R. §18.107(c)(emphasis added).

[27] *See* Metricom Opposition, at 5.

[28] 47 C.F.R. § 97.313.

community has advised the Commission that "[a]mateur stations are operated intermittently by their very nature, with low, most often extremely low duty cycles; and the stations use relatively low power levels."[29/] As the Engineering Statement of Michael Collis submitted in support of the ALAE Comments notes, "[t]he [amateur radio] operators, who are few in number and normally operate at one watt power, have a small impact on the wireless [cable] operators.[30/] Not surprisingly then, T. Lauriston Hardin, P.E. has concluded that "[i]t is an unreasonable leap in logic to project this scattered, generally low power use of a portion of the 2.3 GHz spectrum to be similar to higher power and much more ubiquitous use possible under the current WCS rules."[31/] Accordingly, no analogy can be drawn between the potentially devastating interference caused by unlimited power WCS operations and the nonexistent or negligible interference caused by high power ISM and amateur radio facilities.

D. The Petition Is Not Procedurally Infirm.

Finally, in a transparent procedural attack designed to obscure the weakness of its position on the merits, Metricom asserts that WCA's Petition merely reiterates prior BellSouth arguments that the Commission addressed in the *Report and Order*.[32/] Even a cursory review of

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[29/] Reply Comments of the American Radio Relay League, Inc., ET Docket No. 93-62, at 6 (filed April 25, 1994). *See also* Comments of the American Radio Relay League, Inc., ET Docket No. 93-62, at 14 (filed Jan. 25, 1994); Comments of Members of the ARRL Bio-Effects Committee, ET Docket No. 93-62, at 2 (filed Jan. 10, 1994).

[30/] *See* ALAE Comments, Engineering Statement of Michael Collis, Chief Engineer, Caritas Telecommunications.

[31/] Reply Hardin Statement, at 2.

[32/] Metricom Opposition at 2-3. Metricom also appears to rely on the Commission's assertion that "[N]o potential WCS applicants have had an opportunity to respond to [BellSouth's] comments." *Id. citing Report and Order*, at ¶ 157. However, as pointed out by

the Petition establishes, however, that WCA has done far more in the Petition than merely reiterate prior arguments.

Indeed, the gravamen of the Petition is that the *Report and Order* relied on certain erroneous assumptions in addressing the BellSouth filing. Specifically, WCA established that the Commission had incorrectly assumed that, in connection with a migration to digital technology, the wireless cable industry is "converting to newer, more robustly designed downconverters that have vastly improved frequency selectivity and would not receive WCS signals."[33/] WCA established that not all MDS and ITFS systems would be converting to digital technology, that many had already installed new downconverters designed to accommodate

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WCA in the Petition, BellSouth made its *ex parte* submission on January 30, 1997 -- almost three weeks before the *WCS Order* was released. Moreover, the Commission announced Bellsouth's *ex parte* filing via *Public Notice* released February 7, 1997. *See Public Notice, "Ex Parte Presentations and Post-Reply Comment Period Filings in Non-Restricted Proceedings,"* (rel. Feb. 7, 1997). Thus interested parties had a full opportunity to comment on the matters raised in the BellSouth Statement. *See* WCA Petition at 9 n.17. Moreover, Metricom's point is difficult to fathom. Since the Commission has specifically solicited public comment on WCA's Petition and afforded an additional opportunity for comment, Metricom can hardly argue that interested parties have not had an opportunity to be heard.

[33/] First, many wireless cable systems, particularly those serving more rural communities, are unlikely to convert to digital modulation because the costs associated with digital operations cannot be borne by their limited subscriber base. WCA Petition at 11. For similar reasons, ITFS licensees who operate independently of wireless able systems also have expressed no plans to convert to digital technology any time soon. Id. Second, many of the wireless cable systems that anticipate converting to digital modulation have been installing "digital ready" downconverters for some time now (which are not immune to interference from high-power WCS operations) and will not be replacing those downconverters in connection with a conversion to digital transmission technology. Id. at 11-12. Third, and most importantly, it is impossible for equipment manufacturers to design downconverters that will eliminate blanketing interference from WCS where there are no power limitations on WCS licensees. Id. at 12-13. Accordingly, the solution envisioned by the Commission in the *WCS Order* — the routine replacement of MDS and ITFS downconverters with equipment capable of rejecting interfering signals from high-power WCS operations - - does not exist.

digital operations and, most importantly, that equipment manufacturers cannot design MDS and ITFS reception equipment that would eliminate possible WCS interference without a WCS EIRP limitation. In addition, WCA demonstrated that the Commission's proposed solution to WCS interference, which would only be invoked if actual interference has occurred, would have a significant adverse impact on wireless cable.[34/] None of these points were made by BellSouth, for none of them were known to be relevant until the release of the *Report and Order*.

In short, Metricom's procedural argument is factually incorrect and must be rejected. WCA's Petition is procedurally proper and entitled to full and fair consideration by the Commission.

III. CONCLUSION

The choice before the Commission in this matter continues to be very straightforward: it can take the necessary steps to provide MDS and ITFS licensees with sufficient interference protection against WCS licensees, or it can afford WCS licensees unbounded authority to cause interference to the wireless cable industry and ITFS service providers. For the reasons set forth in the WCA Petition and in the supporting comments, every relevant technical, legal and public interest consideration dictates that the Commission do the former, and nothing in Metricom's

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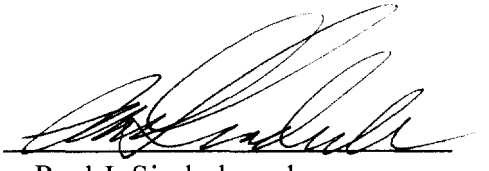
[34/] WCA noted that wireless cable subscribers will not tolerate interference while the Commission conducts a rulemaking proceeding to consider WCS interference - - they instead will switch to alternative sources of multichannel programming, to the detriment of wireless cable operators who recently paid over $200,000,000 in the Commission's MDS spectrum auction. WCA Petition at 14-16. Furthermore, WCA pointed out that WCS interference will have serious adverse affects on the unique and valuable educational services provided by ITFS licensees, regardless of whether they are affiliated with a wireless cable system. Id. at 16-17. Accordingly, the Commission's *post hoc* approach to WCS interference is not a viable solution for wireless cable operators and distance learning providers.

Opposition supports any other conclusion. Accordingly, WCA requests that the Commission modify the Rules adopted in the *Report and Order* to impose a 20 watt EIRP power limitation on WCS operations unless the WCS licensee obtains prior consent from affected MDS and ITFS licensees and applicants to operate at higher power.

THE WIRELESS CABLE ASSOCIATION
INTERNATIONAL, INC.

By: 

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March 25, 1997

ENGINEERING STATEMENT OF T. LAURISTON HARDIN, P.E.
CHAIRMAN OF THE ENGINEERING COMMITTEE OF THE
WIRELESS CABLE ASSOCIATION INTERNATIONAL
IN SUPPORT OF REPLY COMMENTS CONCERNING
THE WCA MOTION FOR RECONSIDERATION

INTRODUCTION

By its recent action in the *Report and Order, GN Docket No. 96-228*, (the "Order") the Commission has amended its Rules to establish Part 27, the Wireless Communications Service ("WCS"). Unfortunately, under the Rules adopted via the Order, the WCS can cause significant interference to the operations of MDS and ITFS systems throughout the country.

As a result, the Wireless Cable Association International ("WCA"), filed a Petition for Expedited Reconsideration of the Order, (the "Petition"). The Petition was placed on Public Notice which required comments by the end of the day on Friday, March 21, 1997. Only one commenter, Metricom, Inc. ("Metricom") filed comments opposing grant of the Petition.

RESPONSE TO ISSUES RAISED IN METRICOM COMMENTS

Interference within 300 feet of WCS transmitter

Metricom, in their comments at paragraphs 3-6, makes several assertions which are either incorrect or incomplete. First, Metricom appears to assert that the possible interference to an MDS/ITFS receive site can only occur within 300 FT of the WCS transmit site. That is not correct. In the Petition, it is clearly stated that interference will occur within 300 FT of a WCS transmit site operating *with 20W EIRP*. If the WCS transmitter power is greater than 20W EIRP, the area of interference increases. As such, limiting the analysis of the interference impact on an MDS/ITFS receive site without considering the WCS transmit power is incomplete and possibly misleading.

Metricom also asserts that the anticipated use of WCS is point-to-point operation. Certainly this use is allowed within the Rules as set out in the Order; however, this is not the only use available and, as based in the comments received during the Rulemaking process, it is not reasonable to assume that point-to-point operation is even the most probable use of the WCS spectrum. As such, any argument which uses point-to-point operation as its basis is flawed and incomplete.

Metricom further asserts that the probability of the location of MDS/ITFS receive sites within 300 FT of a WCS transmit site is very low. However, as demonstrated by the recent announcement by AT&T of use of PCS spectrum in a microcell based design in which cells will be spaced at intervals of as little as 2000 FT, given the flexible usage allowed for WCS under the Order, it is impossible to make broad assumptions as to the density or lack thereof of WCS transmit sites.

As such, it is just as likely that an MDS/ITFS receive site will be within 300 FT of a WCS transmit site as not. The Metricom argument is not consistent with WCS flexible use or trends within the industry.

Presently authorized operations within the 2.3 and 2.4 GHz bands

Metricom notes that there are present uses of the 2.3 and 2.4 GHz bands and then asserts that these uses pose a similar threat to MDS/ITFS operations. This is not true. In the case of ISM operations as allowed under Part 18 of the Rules, the only relevant frequency in these bands is 2450 MHz. The predominate use of this frequency is consumer microwave ovens. In this case, the power is not limited, but the emissions are contained within the product and leakage into the surrounding environment is severely limited.

In addition, as mandated by Section 18.111(b) of the Rules, an ISM operator is required to eliminate any interference which its operation causes. As such, it is incumbent on the ISM operator to employ equipment which does not cause interference, no matter the power level employed.

Concerning the Amateur Radio Operations allowed under Part 97 of the Rules, while such operations are allowed up to 1500W EIRP, recent filings made with the Commission demonstrate that such operations generally employ much lower powers. While MDS/ITFS operations have occasionally experienced interference to specific sites due to Amateur Radio operations, these occurrences have been few as such operations are few. It is an unreasonable leap in logic to project this scattered, generally low power use of a portion of the 2.3 GHz spectrum to be similar to higher power and much more ubiquitous use possible under the current WCS rules.

Adequate Power for WCS Operations

Metricom implores the Commission to provide rules which allow the necessary power to make the WCS attractive and viable. However, they provide no comment as to what power level meets that requirement. In fact, nowhere in their comments does Metricom speak to the issue of appropriate power levels with any data or proposed use of the WCS spectrum. More to the point, with the exception of the Petition for Expedited Reconsideration filed by the PACS Providers Forum and Digivox Corporation, none of the commenters during the entire proceeding, save the WCA, provides any data, much less a compelling case, for any specific power level.

CONCLUSION

As detailed above, the issues raised in the Metricom comments are incomplete or incorrect. As such, as detailed in the Petition, the Rules adopted in the Order pose a serious threat of interference to the present MDS/ITFS operations. **Consequently, the Commission must reconsider its recent actions and provide reasonable and necessary protection to the MDS/ITFS industry.**

The information contained herein was prepared and reviewed by a subcommittee of the engineering committee of the WCA whose members are as follows:

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Mr. Kelly Balius - Wireless One
Mr. James Gracie - CAI Wireless
Mr. Al Kuolas - Pacific Telesis
Mr. Michael Denny - PCTV
Mr. Brian Scott - ATI
Mr. Bob Saunders - BellSouth

Manufacturers

Mr. Robert Hannah - California Amplifier
Mr. John Wachsman - Pacific Monolithics
Mr. Dale Hemmie - Conifer

Respectfully submitted,

T. Lauriston Hardin, P.E.
Chairman, Engineering Committee
Wireless Cable Association International
March 24, 1997

CERTIFICATE OF SERVICE

I, Stephen R. Mead, hereby certify that on this 25th day of March, 1997, I caused copies of the foregoing Reply of The Wireless Cable Association International, Inc. to be served by hand delivery, on the following:

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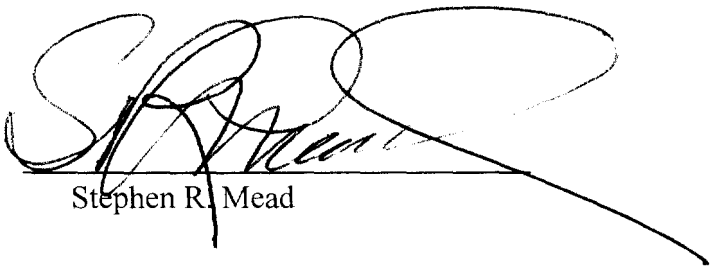

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